

令和2年8月4日実施

名古屋市立大学大学院医学研究科博士課程入学試験（1回目） 外国人－英語

**I. Read the article below and answer the following 5 questions.**

この部分に掲載されている文章に就いては、著作権法上の問題から掲載することができませんので、ご了承ください。



Quoted and adapted from : New Scientist, 23 May 2020

Question 1

What was the key finding(s) of Johnson's study in 2010? State your answer concisely.

Question 2

Regarding the sentence underlined (1), what was the author's understanding about appetite after the experiment described here?

Question 3

Regarding the sentence underlined (2), this article doesn't give the clear answer to this second question for the experiment using locusts. Guess the results and state your answer.

Question 4

Regarding the sentence underlined (3), what do you expect about the resulting food consumption of the locusts? State your answer as concretely as possible.

Question 5

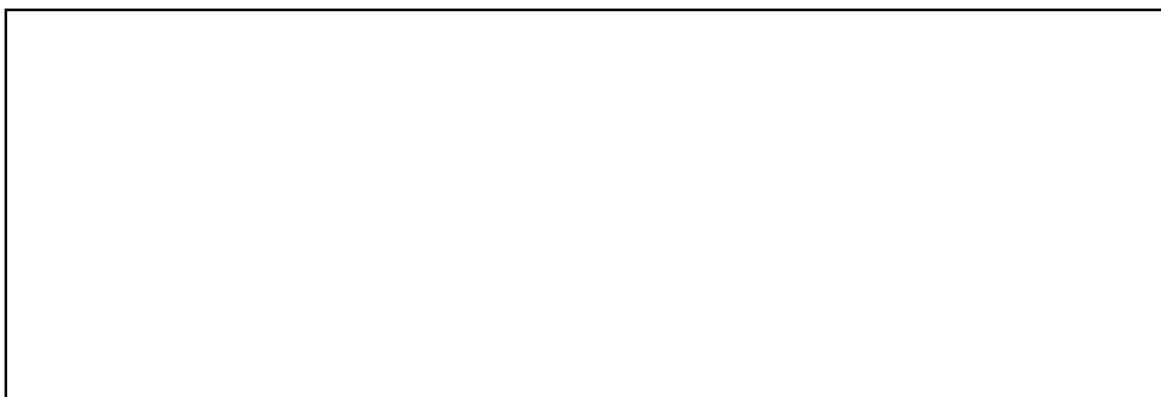
Regarding the sentence underlined (4), what was the authors' conclusion about the relationship between nutrients and appetites?

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**II. Read the sentences below and answer the following 4 questions.**

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Quoted and adapted from : Nature; 581:22-26, May 2020

Question 1

Regarding the sentence underlined (1), explain what that ability is.

Question 2

Regarding the sentence underlined (2), explain why mutation can have their advantage.

Question 3

Regarding the sentence underlined (3), describe one example of the theories.

Question 4

Regarding the sentence underlined (4), list the 7 viruses and their host.

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名古屋市立大学大学院医学研究科博士課程入学試験(1回目)

医学・生物学一般問題(問題用紙1枚、解答用紙2枚)

Select any two of the following four questions, and write your answers on answer sheets provided.

Use one sheet per question (if you need more space for answers, continue them on the reverse side of the sheet). Please make sure that you write the number of question you selected in the answer sheet.

<Question 1>

Answer the following questions 1 to 3 regarding the cell cycle.

Q1: Explain what the cell cycle is.

Q2: The cell cycle is divided into four phases. Explain the name of each phase and the state of the cells in each.

Q3: Explain a disease caused by cell-cycle dysregulation.

<Question 2>

Answer the following questions 1 and 2 about the sympathetic and parasympathetic nervous systems.

Q1: Describe the similarities between them.

Q2: Describe the differences between them from the viewpoints of (a) neuroanatomical characteristics, (b) neurotransmitters, (c) relationship with cognition and behavior, (d) effects on glucose metabolism, (e) effects on digestive system, (f) effects on circulatory system, (g) effects on respiratory system, (h) effects on urinary system.

<Question 3>

Explain what RT-PCR is. Also, mention the origins, characteristics, functions, and biological roles of the enzymes used in this procedure.

<Question 4>

Answer the following questions 1 and 2 regarding the stem cells.

Q1: What is the characteristic of stem cells such as embryonic stem (ES) cells and induced pluripotent stem (iPS) cells, and what is the difference between ES cells and iPS cells?

Q2: Explain the potential for new medical application using stem cells.